

## ABSTRACT OF THE DISCLOSURE

An optical modulation processing section is provided which, in turn, includes a signal carrier-suppressed pulse modulating unit that performs signal carrier-suppressed pulse modulation on a light source  
5 signal to thereby create a CS-RZ signal, a phase modulating unit that performs phase modulation on a data signal based on the CS-RZ signal to thereby convert the data signal to a phase-modulated signal, and an optical filtering unit that filters out redundant frequency components included in the phase modulation signal.